

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. Semester: III Electrical Engineering

Subject Name **INTELLIGENT CONTROL (CONTROL GROUP)**

Sr.No	Course content
1.	Introduction to intelligent control: strategies & characteristics. Fuzzy logic system: Basic concepts of Fuzzy logic approaches, classical sets & Fuzzy sets, linguistic variables, membership functions, basic operation, Fuzzy relations, numbers and arithmetic & logical operations, different de-Fuzzification techniques, Fuzzy rule based model & model based controllers, PID controllers, application of Fuzzy controllers.
2.	Neural Networks: Fundamentals of biological neuron model and ANN, back propagation & related training algorithms, dynamic systems & neural training algorithms, some practical aspects of neural networks, identification of dynamic systems. Genetic algorithms: Basic concepts, design issues & application of genetic algorithms.

Reference Books:

1. Christopher John Harris, Chris G. Moore, Martin Brown, Intelligent Control, World scientific.
2. Clarence W. De Silva, Intelligent Control – Fuzzy Logic Applications, World Scientific.
3. Hagan, Demuth, Beale Neural Network Design, Vikas Publishing House.
4. Jacek M. Zurada, Introduction to Artificial Neural Systems, Jaico Publishing House, 1997.
5. Rajasekharan and Rai, Neural Networks, Fuzzy logic, Genetic algorithms: synthesis and applications, PHI Publication.
6. N. Yadaiah and S. Bapi Raju, Neural and Fuzzy Systems: Foundation, Architectures and Applications, Pearson Education.
7. James A Freeman and Davis Skapura, Neural Networks, Pearson, 2002.
8. Simon Hykins, Neural Networks, Pearson Education.
9. C. Eliasmith and CH. Anderson, Neural Engineering, PHI.
10. David Edward Goldberg, Genetic algorithms in search, optimization and machine learning, Addison-Wesley Longman Publishing Co.